
(12) PATENT ABRIDGMENT (11) Document No. AU-B-25014/84
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 575805

(54) Title
FOAMING THIN DETERGENT WITH CELLULOSE FILM

(51) 4 International Patent Classification

C11D 017/06 B32B 023/04 C11D 013/18

(21) Application No. : 25014/84 (22) Application Date : 24.02.84

(43) Publication Date : 29.08.85

(44) Publication Date of Accepted Application : 11.08.88

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(56) Prior Art Documents
52326/59 240010 C08B, C11D

(57) A film or paper soap (hereinafter referred to as "paper soap") is a solid preparation of soap or other detergent in the form of a thin layer. In general, paper soap comprises a support of paper or other polymer with thin soap layers adsorbed to each side of the support. A number of different paper soaps and processes for their production have been developed.

Claim

1. A process for manufacturing a detergent article, which comprises:

- (a) producing an aerated detergent composition by
 - (i) dissolving water soluble cellulose or synthetic resin polymer in distilled water;
 - (ii) adding one or more detergents;
 - (iii) agitating and blowing air into the composition;
- (b) forming the resulting aerated detergent composition into an aerated detergent film by introducing the composition onto a lubricating horizontal surface such that a thin layer is formed and air drying the film with warm or hot air jets; and
- (c) attaching fine grain short fibre cellulose paper to each side of the aerated detergent film.

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(11) AU-B-25014/84
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-2-

2. A process according to claim 1 which further comprises using a cosmetic oil or perfume as the horizontal surface lubricant or treating the aerated detergent film with cosmetic oil or perfume prior to attaching the cellulose paper.

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COMMONWEALTH of AUSTRALIA

PATENTS ACT 1952

APPLICATION FOR A STANDARD PATENT

X
We

SAMWOO TRADING CO., LTD., of
#200-3, Sawoo-ri, Kimpo-eup,
Kimpo-gun, Kyungki-do,
Republic of Korea.

ALLOWED 27-6-88
IN ACCEPTED PATENTS

hereby apply for the grant of a Standard Patent for an invention entitled:

"FOAMING THIN DETERGENT WITH CELLULOSE FILM"

which is described in the accompanying ~~provisional~~
complete specification.

Details of basic application(s):--

Number

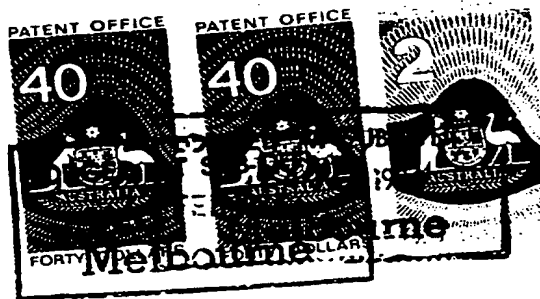
Convention Country

Date

NIL

NIL

NIL



The address for service is care of DAVIES & COLLISON, Patent Attorneys, of 1 Little
Collins Street, Melbourne, in the State of Victoria, Commonwealth of Australia.

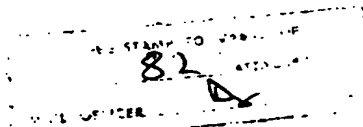
Dated this

24

day of

February

19 84



H. d. Rimington

To: THE COMMISSIONER OF PATENTS

(a member of the firm of DAVIES &
COLLISON for and on behalf of the Applicant).

Davies & Collison, Melbourne and Canberra.

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25014/84

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PATENTS ACT 1952-1973

DECLARATION IN SUPPORT OF CONVENTION OR
NON-CONVENTION APPLICATION FOR A PATENT
OR PATENT OF ADDITION

Insert title of invention.

In support of the Application made for a patent ~~patent of addition~~ for an invention
entitled: "FOAMING THIN DETERGENT WITH CELLULOSE FILM"

Insert full name(s) and address(es)
of declarant(s) being the appli-
cant(s) or person(s) authorized to
sign on behalf of an applicant
company.

I
XX Byung Eun Yoo, President of SAMWOO
TRADING CO., LTD. of
#200-3, Sawoo-ri, Kimpo-eup,
Kimpo-gun, Kyungki-do,
Republic of Korea

Cross out whichever of paragraphs
1(a) or 1(b) does not apply

1(a) relates to application made
by individual(s)
1(b) relates to application made
by company; insert name of
applicant company.

do solemnly and sincerely declare as follows:

XX
XXXXXX

or (b) I am authorized by

SAMWOO TRADING CO., LTD.

Cross out whichever of paragraphs
2(a) or 2(b) does not apply

2(a) relates to application made
by inventor(s)
2(b) relates to application made
by company(s) or person(s) who
are not inventor(s); insert full
name(s) and address(es) of inven-
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the applicant..... for the patent ~~patent of addition~~ to make this declaration on its behalf

XX
XXXXXX

or (b)

Byung Eun Yoo

#616-5, Daemyung-dong, Nam-ku, Daegu-si,
Republic of Korea

LOTE
Melbourne

State manner in which applicant(s)
derive title from inventor(s)

is the actual inventor..... of the invention and the facts upon which the applicant.....
is entitled to make the application are as follows:-

The applicant would, if a patent were granted
upon an application made by the said actual
inventor, be entitled to have the patent assigned
to it.

Cross out paragraphs 3 and 4
for non-convention applications.
For convention applications,
insert basic country(s) followed
by date(s) and basic applicant(s).

3. The basic application..... as defined by Section 141 of the Act ~~was~~ made
in..... on the.....
by.....
in..... on the.....
by.....
in..... on the.....
by.....

4. The basic application..... referred to in paragraph 3 of this Declaration ~~was~~
the first application..... made in a Convention country in respect of the invention the ~~were~~ subject
of the application.

Insert place and date of signature.

Declared at Seoul this 13th day of Feb. 1984

Signature of declarant(s) (no
attestation required)

Note: Initial all alterations.

Byung Eun Yoo
SAMWOO TRADING CO., LTD.
President, Byung Eun Yoo
Sam-Woo Trading Co., Ltd.

575805

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952

COMPLETE SPECIFICATION

(Original)

FOR OFFICE USE

Class

Int. Class

Application Number: 25014/84
Lodged: :

Complete Specification Lodged:
Accepted:
Published:

Priority:

Related Art:

This document contains the amendments made under Section 49 and is correct for printing.

Name of Applicant: SAMWOO TRADING CO., LTD.

Address of Applicant: #200-3, SAWOO-RI, KIMPO-EUP,
KIMPO-GUN, KYUNGKI-DO,
REPUBLIC OF KOREA

Actual Inventor(s): BYUNG EUN YOO

Address for Service: DAVIES & COLLISON, Patent Attorneys,
1 Little Collins Street, Melbourne, 3000.

Complete specification for the invention entitled:

"FOAMING THIN DETERGENT WITH CELLULOSE FILM"

The following statement is a full description of this invention,
including the best method of performing it known to us :-

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This invention relates to film or paper soaps and to processes for their manufacture.

A film or paper soap (hereinafter referred to as "paper soap") is a solid preparation of soap or other detergent in the form of a thin layer. In general, paper soap comprises a support of paper or other polymer with thin soap layers adsorbed to each side of the support. A number of different paper soaps and processes for their production have been developed.

For instance, Japanese Patent Publication No.35 13933 discloses a process in which a mixture of soap and synthetic detergent and ethanol or methanol is heated and dissolved before application to a water soluble high molecular weight support to provide tensile strength. Japanese Utility Model Publication No.64 139 discloses a process in which paper soap plates comprising thinly spread liquid soaps on porous highly absorbant paper are

sewn and bound in a similar fashion to notebooks.

Japanese Patent Publication No. 51 44524 describes a process in which a detergent which is solid at room temperature is melted with heat and spread on the surface of a water soluble film by a coating blade and a heating roller followed by subsequent cooling to solidity with a cooling roller.

In Korean Patent Publication No. 77238 a paper soap is produced by applying liquid soap onto water resistant paper which paper is prepared by spreading liquid paraffin onto the surface of paper at 0 to 3°C so as to adsorb the paraffin into the fine pores of the paper. Soaps have also been prepared by solidifying liquid soaps onto cotton are also available.

The applicant's Korean Patent Publication No. 79-373 discloses aerated soaps in which a foam is generated in the soap film prior to its solidification.

It will be apparent from the foregoing that previously used processes for the production of paper soaps used a technique of adsorbing and drying liquid soaps or detergents onto the surface of a support comprising paper or water resistant polymer film. The previously used processes also invariably applied the said liquid soap or detergent onto both sides of the paper or film support. As the soap layers were on the exterior of the soap, the soap could become desiccated and consequently brittle. Furthermore, the hygroscopic nature of soap tended to make such paper soaps stick together in wet or humid conditions.

Prior art soaps frequently comprised supports which are non degradable, for instance, the cotton and polymer supports described above. As the support does not decompose during use an unsightly residue remains which may block drain pipes. It is an object of the present invention to ameliorate some of the shortcomings of previously known paper soaps and processes for their production.

In accordance with the present invention there is provided a process for manufacturing a detergent article, which comprises:

- (a) producing an aerated detergent composition by
 - (i) dissolving water soluble cellulose ^{synthetic resin} or ~~plastic~~ polymer in ^{distilled} water;
 - (ii) adding one or more detergents;
 - (iii) agitating and blowing air into the composition;
- (b) forming the resulting aerated detergent composition into an aerated detergent film by introducing the composition onto a lubricating horizontal surface such that a thin layer is formed and air drying the film with warm or hot air jets; and
- (c) attaching fine grain short chain cellulose paper to each side of the aerated detergent film.

In a further aspect of the invention there is provided detergent articles manufactured by the process in



the immediately preceding paragraph. The soaps produced in accordance with the present invention are particularly effective in removing unwanted materials from the skin may be less brittle than previously known paper soaps and may be less sticky in humid conditions.

The water soluble cellulose or ^{synthetic resin} ~~plastic~~ polymer used in making the initial aerated detergent composition may be any appropriate substance although carboxymethyl cellulose CMC or polyvinyl alcohol are favoured as they are easily available.

The cellulose used as in outer layers is a thin porous paper like material preferably made from fine grade short chain cellulose, such as secondary cellulose. The outer layers are of such a consistency that they are easily degraded upon contact with water. The outer layer may enhance the detergent articles' effectiveness as the cellulose layers may be absorbative by virtue of the capillarity of the porous cellulose layers and may also help to abrade the skin in use in much the same manner as a luffa.

As the cellulose layer in the detergent articles of the present invention are on the exterior of the article and not impregnated with soap as was the case in previously known paper soaps, the cellulose has a pleasing natural feel and can help the articles to resist sticking together in humid environments. The cellulose layer may be printed preferably before application to the thin layer of aerated detergent composition to enhance the aesthetic appeal of the detergent article.

In producing the paper soaps of the present

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invention a cosmetic oil, such as olive oil may be used to lubricate the horizontal surface upon which an aerated detergent composition is introduced to form a thin layer, which oil will tend to adhere to the detergent layers. Perfumes, pigments, bacteriocides, antioxidants etc may also be introduced into the detergent articles in an analogous manner or may be incorporated into the detergent composition prior to forming it into a thin layer.

In general, the aerated detergent layer will have a thickness of approximately 13 to 15 μm , and a tensile strength, upon hardening, of .075 to .095 Kg/15mm. The aerated detergent layer will usually have a consistency rather like a sponge due to the air bubbles introduced during the manufacturing process.

In forming the initial detergent composition distilled water is particularly preferred to dissolve the cellulose or other polymer prior to addition of the detergents. A temperature of 20°C to 40°C is convenient. Advantageously the detergent composition is aerated by agitating the composition while blowing air into the composition. Five to six hours of agitation at for instance 120 rpm may be required to aerate the detergent composition.

Where the aerated detergent composition is dried with warm or hot air jets, it is convenient if the layer thereof is formed on the surface of a horizontal conveyor which may run the said layer past hot air jets. Preferably the hot air jets are positioned counter to the movement of the said conveyor at an angle of, for instance 45°C. The warm or hot air jets may have a temperature of 40° to 50°C and a velocity of 1m/sec.

A suitable formulation for the detergent composition (prior to the application of the cellulose outer layers) is as follows.

Example 1

Distilled water	4,400g
Polyvinyl alcohol	0.6g
Polyethylene glycol	0.005g
Sodium laurel sulphate	4.06g
Laurel alcohol diethanolamine	1.040g
Bactericide	trace
Perfumery	trace
Coloring matter	trace

The polyvinyl alcohol is dissolved in the distilled water a temperature of 20°C to 40°C. To this solution is added the remaining ingredients. The composition thus formed is now ready to aerated and agitated as described later.

The manufacturing process of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a flow sheet for the process forming an aspect of the present invention.

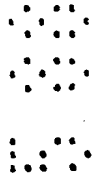
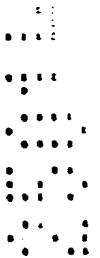
Figure 2 is a process illustration sheet for the formation and drying of the aerated detergent composition and the attachment of cellulose sheets thereto.

With reference to figure 1, the detergent

composition of Example 1 is introduced into an agitating chamber 3 through the hopper 2 of agitator 1. Air is introduced into the chamber 3 by injection fan 6 mounted on rotary axis 5 propelled by motor 4. The said air is filtered by filter 7. The axis 5 is also mounted with wing blades 8, 8¹, 8¹¹ etc. fixed in the form of steps up the axis. After 5 to 6 hours of agitation at a speed of 120 rpm the detergent composition is visibly aerated as seen through window 9 in the side of chamber 3. The aerated detergent composition can then be drawn off to reservoir 13 via outlet 12 and cock 10. A further fan 11 on the axis is provided to aid the passage of aerated detergent composition into the reservoir. The reservoir can be emptied through valve 14.

With reference to figure 2, inlet A receives aerated detergent composition from the agitator described immediately above. The composition then travels through worm race 18 of extruder 16 and is extruded through nozzle 16¹ onto a conveyor belt 18 which has been annointed with olive oil. The aerated detergent composition is thus formed into a film of approximately 15 mm. As the aerated detergent film thus produced is carried along conveyor belt 18, it is dried by hot air jets 19 and 19¹ issuing air at 1m/sec at a temperature of 45 to 50°C and oriented at approximately 45° counter to the direction of the movement of the aerated detergent film. The film is collected at the end of conveyer 18 by rollers 21. Perfume and cosmetic oil are annointed onto the film as it passes roller 21. The aerated detergent film is then pressed through pressing rollers 22 and 22¹. Thin cellulose paper is attached on each side of the aerated detergent film from paper spools 23 and pressed onto the film with paired rollers 24. The completed detergent

article is collected onto a spool by roller 25.



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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A process for manufacturing a detergent article, which comprises:
 - (a) producing an aerated detergent composition by
 - (i) dissolving water soluble cellulose or synthetic resin polymer in distilled water;
 - (ii) adding one or more detergents;
 - (iii) agitating and blowing air into the composition;
 - (b) forming the resulting aerated detergent composition into an aerated detergent film by introducing the composition onto a lubricating horizontal surface such that a thin layer is formed and air drying the film with warm or hot air jets; and
 - (c) attaching fine grain short fibre cellulose paper to each side of the aerated detergent film.
2. A process according to claim 1 which further comprises using a cosmetic oil or perfume as the horizontal surface lubricant or treating the aerated detergent film with cosmetic oil or perfume prior to attaching the cellulose paper.
3. A process according to claim 1 or 2 in which in step (a)(iii), the composition is agitated and air is blown in for a period of five to six hours.
4. A process according to any one of claims 1 to 3 in which the aerated detergent film is introduced onto the lubricating surface of a moving conveyor belt which passes the film under hot air jets directed at 45°C against the



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direction of the conveyor movement.

5. A process according to any one of claims 1 to 4 in which the hot air jets have a temperature of 45 to 50°C at a speed of 1 m/sec.

6. A process according to any one of claims 1 to 5 in which the agitation is at approximately 120 rpm.

7. A detergent article produced by the process of any one of claims 1 to 6.

Dated this 14th day of June, 1988.

DAVIES & COLLISON
Patent Attorneys for
SAMWOO TRADING CO. LTD.

FIG. 1

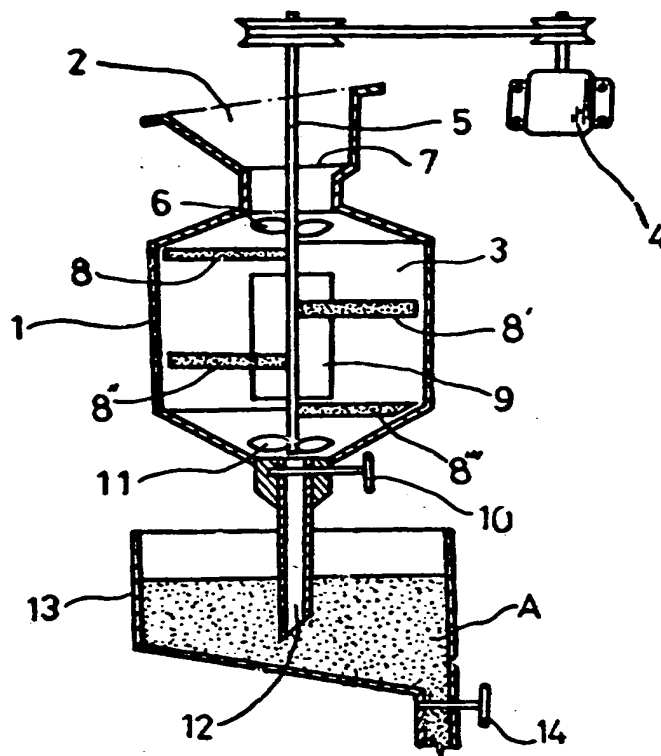


FIG. 2

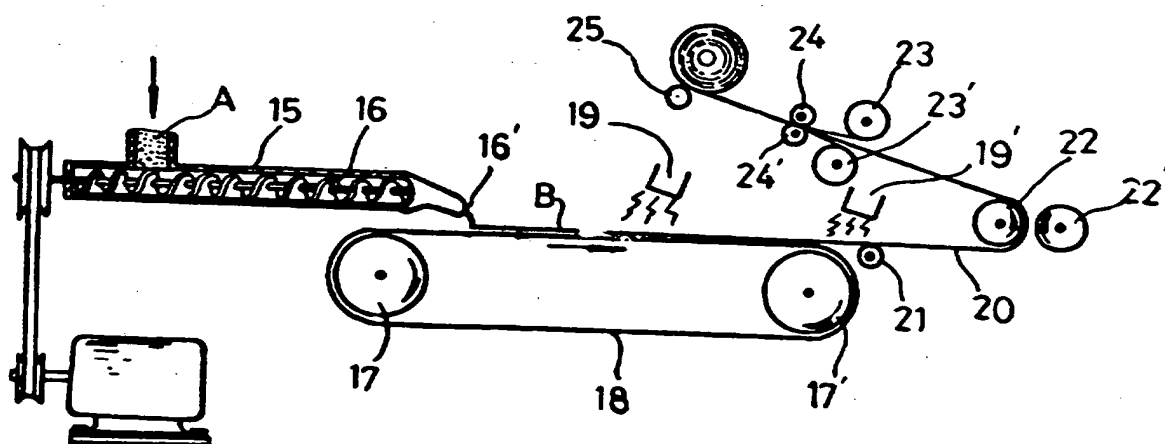


FIG. 3

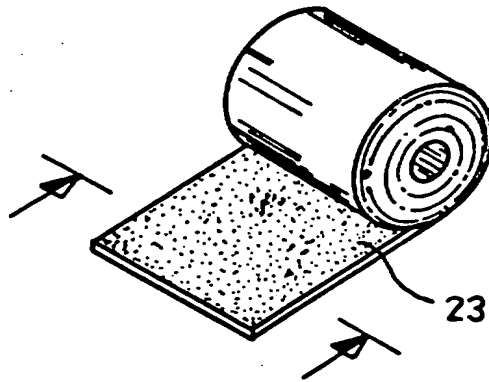


FIG. 4

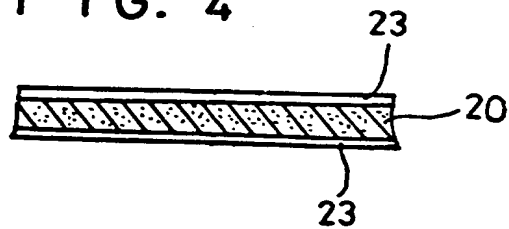
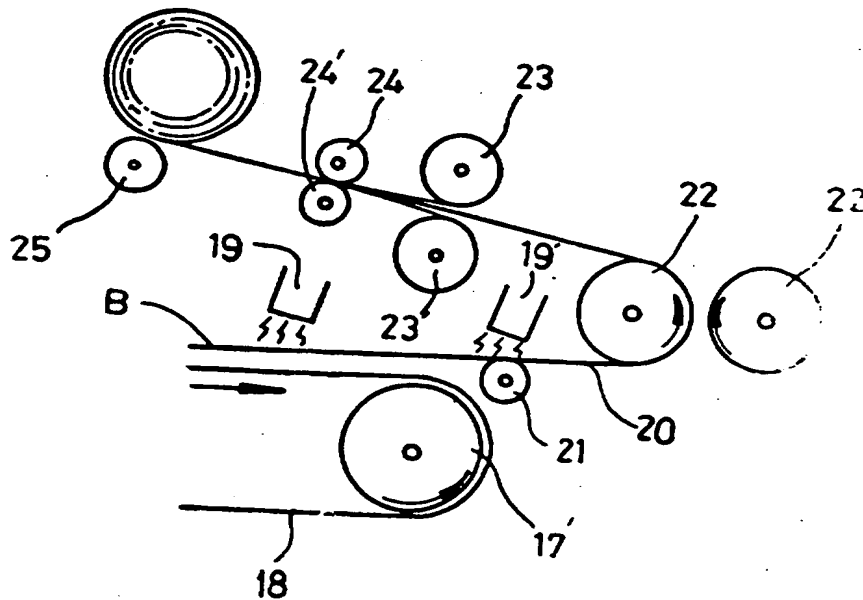


FIG. 5



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